

Appln No. 10/051,391

Amdt date September 3, 2003

Reply to Office action of June 3, 2003

Amendments to the Specification:

Please amend the paragraphs starting on page 4, line 32 through page 5, line 20 as follows:

FIG. 1 is a block diagram of a tunable optical device in accordance with aspects of the invention. An input light beam is provided by a ~~fiber~~ 2 fiber. The light beam passes through ~~input optics~~ 4 optics 2 to a ~~mirror~~ 6 mirror 4. In some embodiments the input optics form a collimating lens, with the fiber positioned one focal length from the collimating lens and the collimating lens forming a collimated beam passed to the mirror. In some embodiments the input optics form a lens with the fiber positioned one focal length from the lens on one side and the mirror positioned one focal length from the lens on the other side.

Light incident on the mirror is reflected through device ~~optics~~ 8 optics 6 to a position dependent optical element 10 element 8. As with the input optics the device optics may be a collimating lens or a lens with the mirror and the position dependent optical element on either side of the device optics a focal length away. The position dependent optical element effects a change, other than merely directional changes, to a characteristic of the light based on the location at which the light is incident on the element. Some examples of such elements are discussed further below.

Please amend the paragraphs starting on page 6, line 5 through line 25 as follows:

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Returning to FIG. 1, movement of the mirror results in translation of the light beam incident on the position dependent optical element. Control of movement of the mirror is provided by a ~~controller~~ 12 controller 10. In some embodiments the controller autonomously commands movement of the mirror according to a preprogrammed routine. Such a routine, for example, may cause the mirror to move with the result that the light beam periodically traverses the position dependent optical element in a known manner. In some embodiments the controller receives information from a monitoring element (not shown) associated with the optical fiber, or more commonly a monitoring device downstream of a path providing a signal to the optical fiber. In such embodiments the controller therefore receives information regarding light beams acted upon by the position dependent optical element and returned to an optical network.

In other embodiments the position dependent optical element passes some or all of the light beam to a monitoring ~~device~~ 14 device 12. The monitoring device measures a characteristic of the light beam and provides information regarding the characteristic to the controller. The controller uses the information regarding the characteristic to command movement of the mirror.

Please amend the paragraphs starting on page 6, line 34 through page 7, line 15 as follows:

As illustrated in FIG. 2, the mirror is a MEMS mirror rotatable about an axis 9. The beam is incident on the mirror and reflected to a second lens 11. As the beam is focused on the

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mirror by the first lens the beam diverges as it moves from the mirror. The divergent beam is passed through a second ~~lens~~¹³ lens 11. The second lens is a collimating lens, the mirror and second lens are one focal length apart, and the beam is therefore collimated by the second lens.

The collimated beam is provided to a Fabry-Perot ~~filter~~¹⁵ filter 13. The filter is an etalon, with the etalon forming a reflective Fabry-Perot cavity. The distance between front and rear surfaces of the etalon define the cavity length, and the cavity length determines the resonant wavelength of the filter. The filter substantially reflects light at wavelengths other than the resonant wavelength, which is transmitted through the filter.

Please amend the paragraph starting on page 7, line 26 through line 30 as follows:

A portion of the beam passes through the etalon to a ~~detector~~¹⁷ detector 15. The detector is a photodetector sufficiently large to detect light emanating from a large number of points on the etalon, although in some embodiments further lenses are used to focus light emanating from the etalon on the photodetector.